

Waves in Nature: Lasers to Tsunamis and Beyond

Ed Moses
Project Manager and Principal Deputy Associate Director
National Ignition Facility (NIF)
Lawrence Livermore National Laboratory

Richard Sawicki
Chief Engineer, National Ignition Facility Program
Lawrence Livermore National Laboratory

Dan Burns
Physics Teacher
Los Gatos High School

Student Anticipation Guide and Worksheet

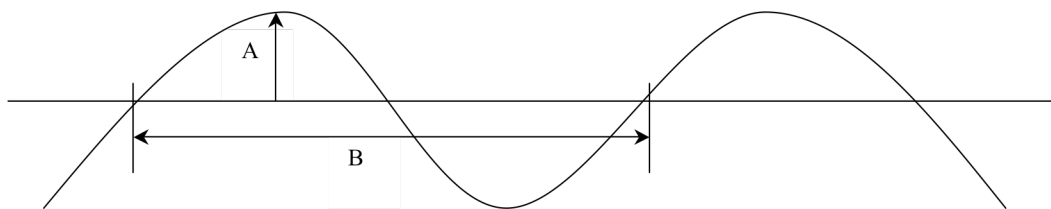
Wave phenomena are common in everyday life. Because of this, many people already know a lot about it. Test your knowledge by circling True or False next to each statement below. Revisit your answers at the end of the presentation to see how well you did.

- | | | |
|---|---|--|
| T | F | The amplitude of a sound wave is a measure of its pitch. |
| T | F | Ocean waves bring water in to shore from further out from shore. |
| T | F | Light waves can travel through a vacuum. |
| T | F | Light waves can tell us about the makeup of the object that produced them. |
| T | F | Tsunami waves are dozens of feet high out in the deep ocean. |
| T | F | Sound can travel through string. |
| T | F | The wavelength of a light wave is a measure of its color. |

Listen carefully to the presentation to answer the questions during the talk. You will need these answers to get credit from your teacher.

1. What type of wave can heat popcorn?
2. What does the Governor do that is not safe?
3. Write the wave property that goes with each letter shown on the diagram below.

A _____ B _____



4. Sort this list of waves by whether it is transverse or longitudinal (compression): light, sound, water, microwave, earthquake P wave, earthquake S wave, slinky, “Human Wave”.

Transverse

Longitudinal (Compression)

5. How can you tell you are at a node when the standing sound wave is generated?
6. Give 2 examples of wave resonance.
7. List all the waves that are used to make the National Ignition Facility (NIF) work. Don't forget the most important one, brain waves!